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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,474	02/26/2002	Paul Davids	10559-682001 / P13240	4879
20985	7590	12/31/2003	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			PETKOVSEK, DANIEL J	
			ART UNIT	PAPER NUMBER

2874

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/085,474	<b>Applicant(s)</b> DAVIDS ET AL.	
	<b>Examiner</b> Daniel J Petkovsek	<b>Art Unit</b> 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on RCE received November 28, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 31-50 is/are pending in the application.
- 4a) Of the above claim(s) 10-30 is/are withdrawn from consideration. *(these claims have been cancelled)*
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 31-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on May 20, 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This office action is in response to the RCE received November 28, 2003. In accordance with the request, claims 1-9 have been amended, and new claims 31-50 have been added.

#### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 29, 2003 has been entered.

#### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 40 recites the limitation "wherein *the* mode" in the last line of the independent claim. There is insufficient antecedent basis for this limitation in the claim, as a mode is never defined previously in the claim.

#### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2874

5. Claims 40 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaneko et al. U.S.P. No. 6,661,939.

. Kaneko et al. U.S.P. No. 6,661,939 teaches (Fig. 1, column 4, lines 38-63) an optical device comprising: a waveguide core 3 having a bottom surface (looking at the figure inverted) a cladding layer 4 adjacent the bottom surface, a detector layer 5, and a resin layer 7 (see column 10 line 59 through column 11 line 8) that attenuates the optical signal while being positioned on top of the detector layer 5 and coupled to the bottom surface of the waveguide core 3. Regarding claim 43, the detector can be a phototransistor (column 5, lines 55-65).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-9, 31-39, 41, 42, and 44-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko et al. U.S.P. No. 6,661,939, and further in view of Cox et al. US 2003/0103542 A1.

Kaneko et al. U.S.P. No. 6,661,939 teaches (Fig. 1, column 4, lines 38-63) an optical device comprising: a waveguide core 3 having a bottom surface (looking at the figure inverted) a cladding layer 4 adjacent the bottom surface, a detector layer 5, and a resin layer 7 (see column 10 line 59 through column 11 line 8) that attenuates the optical signal while being positioned on top of the detector layer 5 and coupled to the bottom surface of the waveguide core 3.

Kaneko et al. U.S.P. No. 6,661,939 does not explicitly teach that the cladding or buffer layer 4 adjacent to the bottom surface of the waveguide has a thickness equal to or greater than an evanescent tail of a mode to be transmitted along the core.

Cox et al. US 2003/0103542 A1 teaches (ABS, [0012], [0053]-[0054], figure 6, etc.) a waveguide comprising: a waveguide core 82 having a bottom surface and a top surface that defines an angle, and a cladding layer 80 adjacent to the bottom surface of the waveguide 82, the cladding having a thickness equal to or greater than an evanescent tail of a mode to be transmitted along the waveguide core 82. Cox et al. '542 teaches that in order to prevent guided modes from entering adjacent optoelectronic devices (such as the detector of Kaneko et al. '939), the cladding/buffer layer must be of a sufficient thickness to prevent an evanescent tail from entering adjacent layers.

Since Kaneko et al. '939 and Cox et al. '542 are both from the same field of endeavor, the purpose of preventing an evanescent tail from entering adjacent layers by having cladding/buffer with sufficient thickness, disclosed by Cox et al. '542, would have been recognized in the pertinent art of Kaneko et al. '939 to ensure proper functionality of the adjacent photodiode.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to ensure a cladding/buffer layer at least thick enough to prevent an evanescent tail from entering adjacent layers to ensure there is no interference in the apparatus.

Regarding claims 2-6, 32-36, 41-42, and 44-45, the angled mirror surface 8 of the device propagates optical signals from the core 3, through the attenuating layer 7, into the detector layer 5. The core acts as a waveguiding region until the signal deflects from the beveled surface.

Art Unit: 2874

Regarding claims 7-9, 37-39, and 46-48, the photodiode as discussed by Kaneko et al. '939 does not explicitly teach n-type and p-type regions, however, these regions in photodiodes are well known in the art as encompassing photodiodes on the semiconductor level. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use any well known photodiode (such as having n-type and p-type regions) for the use in the optical device to improve performance with increased efficiency.

### ***Inventorship***

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, with respect to the state of the art of optical devices having attenuating layers to improve coupling to a photodetector: PTO-892 form references B-E.

The rejections to Bazylenko et al. 6,154,582, Cox et al. US 2003/0103542 A1, and Tran et al. U.S.P. No. 6,323,480 from previous office actions have been withdrawn, since the

Art Unit: 2874

attenuating layers are not explicitly taught or reasonably disclosed to be coupled directly to the bottom surface of the waveguide core.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (703) 305-6919. The examiner can normally be reached on M-F 8:30-5:00. After January 12, 2004, the new phone number of the Examiner will be (571) 272-2355.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9321.



Daniel Petkovsek  
December 18, 2003



Brian Healy  
Primary Examiner